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**Seminar by the IEEE Ottawa Robotics/PES/RS Chapters, Educational Activities and  
Algonquin College Student Branch**

*The IEEE Ottawa Section is inviting all interested IEEE members and other engineers, technologists, and students to a seminar on Electricity Production.*

**Achieving Cleaner and More Efficient Electricity Production  
Using Free Spinning Reserve**

by

**Prof. Stan Pejovic, Ph.D., P.Eng.**

**Department of Civil Engineering, University of Toronto**

**DATE:** **Thursday, November 17, 2005.** (For maps, click on the underlined hyperlinks below.)  
**TIME:** **6:00 p.m.** Refreshments, Registration and Networking; **6:30 – 8:00 p.m.** Seminar.  
**PLACE:** Algonquin College, [1385 Woodroffe Ave.](#), [Advanced Technology Building \(T\)](#), Room T106.  
**PARKING:** No fee after 5:00 p.m. at the Visitors' Parking Lots 8 & 9. Please respect restricted areas.

**Abstract** For a power system to be stable, and thus to avoid blackouts in case of sudden shifts in load conditions, it is essential to have in operation plants “spinning” under no-load (or partial-load) conditions. These plants are not actually producing any substantial amounts of electricity although their rotating generators are electrically connected to the grid. Such an operation allows the power system to quickly respond to changing conditions, and thus to match power production with energy demand.

Power plant design implies that generator maximum efficiency is at a lower output power level than the so-called design/rated power level. This creates an opportunity to both achieve higher efficiency and provide free spinning reserve. If the system is optimized to produce power at the lowest price, the difference between the generating power and rated power of all units in operation, serves essentially as a free spinning reserve. Moreover, this will have stabilizing effects ensuring more uniform electricity price and protecting the system from blackouts. Thus, two important goals will be achieved: (i) ensuring free spinning reserve, and (ii) ensuring the best price of electricity (i.e. lower kWh price or higher profit).

Q & A period and discussion will conclude the session.

**Stanislav Pejovic** is a Professor and Research Associate at the University of Toronto and Ryerson University, Toronto. He was formerly Professor of hydraulic energy and hydraulic machinery and the head of Hydraulic Energy Department at the Faculty of Mechanical Engineering, University of Belgrade. He is author of several books on vibrations, hydraulic transients, and a co-author of: “The Guide to Hydropower Mechanical Design”, prepared by ASME Hydro Power Technical Committee, 1996 (new edition is under review), as well as of “Guidelines to Hydraulic Transient Analysis”, 1992; and 1987. He has acted as consultant on design, construction, on-site and model tests of power plants and computer simulation of transient and hydraulic vibration of many systems. As an engineer at “Energoprojekt”, Belgrade, he designed and tested the highest, at the time, (600 m) head Pumped-Storage Power Plant “Bajina Basta”, and a number of other electric power plants and pumping systems. He has been involved in troubleshooting in US, Canada, Iran, and other countries. Dr. Pejovic is a registered Professional Engineer in the Province of Ontario.

**Admission:** IEEE members: Free Non-members, Retired / Job Seekers: \$5.00  
Non-members, Students: \$3.00 Non-members: \$10.00  
Refreshments included.

**To ensure a seat, please register by e-mail:**

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